

**LESSON**

**Proportional Relationships**

**1**

**Review for Mastery: Rates**

A **rate** is a ratio that compares two different kinds of quantities or measurements. Rates can be simplified. Rates sometimes use the words *per* and *for* instead of *to*, such as 55 miles per hour and 3 tickets for \$1.

The scale on a map might be 3 inches equals 60 miles. Simplify by dividing both numerator and denominator by the same number.

$$\frac{3 \text{ inches}}{60 \text{ miles}} = \frac{3 \div 3}{60 \div 3} = \frac{1 \text{ inch}}{20 \text{ miles}}, \text{ or } 1 \text{ inch to } 20 \text{ miles}$$

A **unit rate** is a rate per 1 unit. So, in a unit rate, the denominator is always 1.

Miguel can type 180 words in 4 minutes.

$$\frac{180 \text{ words}}{4 \text{ minutes}} = \frac{180 \div 4}{4 \div 4} = \frac{45 \text{ words}}{1 \text{ minute}}, \text{ or } 45 \text{ words per minute}$$

↑
↑
↑  
rate
unit rate
word form

**Find each unit rate. Write in both fraction and word form.**

1. Film costs \$7.50 for 3 rolls.

$$\frac{\$7.50}{3 \text{ rolls}} = \frac{7.50 \div 3}{3 \div 3} = \frac{\$}{1 \text{ roll}}$$

Word form: \_\_\_\_\_

2. Drive 288 miles on 16 gallons of gas.

$$\frac{288 \text{ mi}}{16 \text{ gal}} = \frac{288 \div 16}{16 \div 16} = \frac{\text{mi}}{1 \text{ gal}}$$

Word form: \_\_\_\_\_

3. Earn \$52 for 8 hours of work.

$$\frac{\$52.00}{8 \text{ hr}} = \frac{52 \div 8}{8 \div 8} = \frac{\$}{\text{hr}}$$

Word form: \_\_\_\_\_

4. Use 5 quarts of water for every 2 pounds of chicken.

$$\frac{5 \text{ qt}}{2 \text{ lb}} = \frac{5 \div 2}{2 \div 2} = \frac{\text{qt}}{\text{lb}}$$

Word form: \_\_\_\_\_

5. Snowfall of 12 inches in 4 hours

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6. 90 students and 5 teachers

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